Claim Amendments

1. **(Currently Amended)** A process for generating a complementary DNA (cDNA) molecule from an RNA molecule comprising:

a) annealing a first primer containing a non-replicable element, with or without a cleavable element, to an RNA molecule,

b) generating a first strand cDNA product,

c) separating the first strand cDNA from its template to produce single standed molecules,

d) annealing a second primer containing a non-replicable element, with or without a cleavable element, to the first strand cDNA product, and

e) ~~d)~~ generating a second strand cDNA product that is a complement of said first ~~cDNA~~ strand cDNA.

2. **(Currently Amended)** A process for amplifying a cDNA molecule comprising:

a) generating a cDNA molecule according to the process of claim 1 ;

b) combining said first strand cDNA and said complement of said first strand cDNA ~~strands~~ in a reaction mixture with ~~a~~ at least one amplification primer containing a non-replicable element and/or a cleavable element, under conditions such

that first generation amplification primer extension products are produced using said strands as templates, and wherein said amplification primer for ~~—~~a first strand cDNA ~~strand —~~is selected such that a first generation amplification primer extension product produced using said first strand cDNA ~~strand —~~as a template, when separated from said first strand cDNA ~~strand~~, can serve as a template for synthesis of a second generation amplification primer extension product of the second amplification primer for said complement of said first strand cDNA;

c) separating said first generation amplification primer extension products; from their respective templates to produce single-stranded molecules; and

d) treating the first generation amplification primer extension products with the second generation amplification primers ~~of claim 2, step (b) —~~under conditions such that second generation amplification primer extension products are produced using the first generation amplification primer extension products as templates, wherein the second-generation amplification primer extension products contain at least a portion of the sequence of the nucleic acid sequence of said first generation amplification primer extension product and no more than an insufficient

portion of the binding site for said first amplification primers for producing said first generation amplification primer extension products ~~of claim 2.~~,

wherein said second generation amplification primer extension products accumulate in a mathematically linear fashion.

3. **(Currently Amended)** A process for amplifying a cDNA molecule comprising:

(a) generating a cDNA molecule according to the process of claim 1,

(b) combining said first strand cDNA and said complement of said first strand cDNA ~~strands~~ in a reaction mixture with first amplification primers and second amplification primers, each of which contains a non-replicable element and/or a cleavable element, under conditions such that a first generation amplification primer extension product is synthesized using said strands as templates, and wherein the first and second amplification primers are selected such that the first generation amplification primer extension products, when separated from their templates, can serve as templates for synthesis of second generation amplification primer extension products of the first and second amplification primers;

(c) separating the first generation amplification primer extension products from

their respective templates to produce single-stranded molecules; and

(d) treating the first generation amplification primer extension products with the first and second amplification primers under conditions such that second generation amplification primer extension products are synthesized using the first generation amplification primer extension products as templates, wherein the second-generation amplification primer extension products contain at least a portion of the sequence of the nucleic acid sequence of said first generation amplification primer extension product and no more than an insufficient portion of the binding site for said first and second amplification primers for producing said first-generation amplification primer extension products~~.~~

wherein said second generation amplification primer extension products accumulate in a mathematically linear fashion.

4. **(Currently Amended)** A process for amplifying a cDNA molecule comprising:

(a) generating a cDNA molecule according to the process of claim 1;

(b) combining said first strand cDNA and said complement of said first strand cDNA ~~strands~~ in a reaction mixture with a series of nested primers, each nested primer containing a non-

replicable element and/or a cleavable element, said series of nested primers comprising a plurality of primers which are complementary to different portions of said strands and are 5' to one another with respect to said strand and which do not overlap with one another at the position of said non-replicable element or cleavable element;

(c) subjecting said reaction mixture to conditions such that first generation primer extension products are produced from first nested primers, and not from other of said series of nested primers using the first and second strands as templates, wherein said first nested primers are primers of, said nested primers which are most 3′ with respect to said sequence of said first and second cDNA strands, and wherein the first nested primers are selected such that a first generation primer extension product, when separated from its template, can serve as a template for synthesis of a second generation extension product of the first nested primer for the complement strand;

(d) separating the first generation primer extension products from their respective templates to produce single-stranded molecules;

(e) exposing said reaction mixture to conditions such that second generation primer extension products are generated by said first nested primers using first generation primer extension products as templates, wherein the second

generation primer extension products contain at least a portion of the sequence of the nucleic acid sequence of said first generation primer extension product and no more than an insufficient portion of the binding site for said first nested primers for producing said first generation primer extension products;

(f) separating the second generation primer extension products from their template to produce single stranded molecules;

(g) subjecting the reaction mixture of step (f) to reaction conditions such that next generation primer extension products are synthesized from another nested primer of said series of nested primers using second generation primer extension products as templates, and separating the thus produced next generation primer extension products from their templates to produce single-stranded molecules; and

(h) repeating step (g) such that each repeat of step (g) comprises subjecting the reaction mixture to conditions such that next generation primer extension products are synthesized from a different nested primer of said series of nested primers using the next prior generation primer extension products as templates.

5. **(Currently Amended)** A process for amplifying a cDNA molecule comprising:

(a) generating a cDNA molecule according to the process of claim 1;

(b) combining said first strand cDNA and said complement of said first strand cDNA~~strands~~ in a reaction mixture with a series of nested primers, each nested primer containing a non-replicable element and/or a cleavable element, said series of nested primers comprising a plurality of primers which are complementary to different portions of said strands and flank the sequence of interest but do not overlap with one another at the position of said non-replicable element or cleavable element;

(c) subjecting said reaction mixture to conditions whereby each of said nested primers is capable of binding to its respective complementary site;

(d) separating the first generation primer extension products from their respective templates to produce single-stranded molecules; and

(e) repeating steps (c) and (d) whereby next generation primer extension products are synthesized from a different nested primer of said series of nested primers using the next prior generation primer extension products as templates.

6. **(Original)** The process according to any one of claims 1-5, wherein the non-replicable element is not located at the terminal residue of any of said primers.

7. **(Original)** The process according to any one of claims 1-5, wherein the cleavable element is not located at the terminal residue of any of said primers

8. **(Currently Amended)** The process of anyone of claims 2-5, wherein said amplification primer ~~of step (b) of the dependent claim~~ contains a non-replicable element.

9. **(Currently Amended)** The process of anyone of claims 2-5, wherein said amplification primer ~~of step (b) of the dependent claim~~ contains a cleavable element.

10. **(Original)** The process of claim 9 wherein the cleavable element is a ribonucleoside.

11 **(Original)** The process of claim 10 wherein said first generation primer extension product is cleaved by treating said product with ribonuclease.

12. **(Original)** The process according to any one of claims 1-5 wherein the non-replicable element is a derivative of a deoxyribonucleotide.

13. **(Original)** The process according to any one of claims 1-5 wherein the non- replicable element is a derivative of a ribonucleotide.

14. **(Original)** The process according to claim 13 wherein the non- replicable element is a residue of 1,3-propane diol.

15. **(Original)** The process according to claim 13 wherein the non- replicable element is a residue of 1,4-anhydro-2-deoxy-D- ribitol.

16. **(Previously Amended)** A process for generating a complementary DNA (cDNA) molecule from an RNA molecule comprising:

a) annealing a primer containing a non-replicable element, with or without a cleavable element, to an RNA molecule, and

b) generating a first strand cDNA product.

17. **(Currently Amended)** A process for amplifying a cDNA molecule comprising:

a) generating a first strand cDNA ~~molecule~~ product according to the process of claim 16;

b) combining the first strand cDNA ~~strand~~ in a reaction mixture with a primer containing a non-replicable element and/or a cleavable element, under conditions such that first-generation primer extension product is produced using said strand as a template, and wherein the primer for said strand is selected such that a first generation primer extension product produced using said strand as a template, when separated from said strand, can serve as a template for synthesis of a second

generation primer extension product of a primer for the first generation primer extension product;

c) separating the first generation primer extension products from their respective templates to produce single-stranded molecules; and

d) treating the first generation primer extension products with the primers described in step (b ) under conditions such that second generation primer extension products are produced using the first generation primer extension products as templates, wherein the second generation primer extension products contain at least a portion of the sequence of the nucleic acid sequence of the first generation primer extension product and no more than an insufficient portion of the binding site for said first primers for producing said first generation primer extension products~~.~~, wherein said second generation amplification primer extension products accumulate in a mathematically linear fashion.

18. **(Currently Amended)** A process for amplifying a cDNA molecule comprising:

a) generating a first strand cDNA ~~molecule~~product according to the process of claim 16;

b) combining the first and second cDNA strands in a reaction mixture with first primers and second primers, each of said first and second primers containing a non-replicable element and/or a cleavable element, under conditions such that a

first generation primer extension product is synthesized using said strands as templates, and wherein the first and second primers are selected such that the first generation primer extension products, when separated from their templates, can serve as templates for synthesis of second generation primer extension products of the first and second primers;

c) separating the first generation primer extension products from their respective templates to produce single-stranded molecules; and

d) treating the first generation primer extension products with the first and second primers under conditions such that second generation primer extension products are synthesized using the first generation primer extension products as templates, wherein the second generation primer extension products contain at least a portion of the sequence of the nucleic acid sequence of the first generation primer extension product and no more than an insufficient portion of the binding site for said first and second primers for producing said first generation primer extension products~~.~~, wherein said second generation amplification primer extension products accumulate in a mathematically linear fashion.

19. **(Previously Amended)** A process for amplifying a cDNA molecule comprising:

a) generating a cDNA molecule according to the process of claim 16;

b) combining the first and second cDNA strands in a reaction mixture with a series of nested primers, each nested primer containing a non-replicable element and/or a cleavable element, said series of nested primers comprising a plurality of primers which are complementary to different portions of said strands and are 5′ to one another with respect to said strands and which do not overlap with one another at the position of said non-replicable element or cleavable element;

c) subjecting said reaction mixture to conditions such that first generation primer extension products are produced from first nested primers, and not from other of said series of nested primers using the first and second strands as templates, wherein said first nested primers are primers of said nested primers which are most 3' with respect to said sequence, and wherein the first nested primers are selected such that a first generation primer extension product, when separated from its template, can serve as a template for synthesis of a second generation extension product of the first nested primer for the complement strand;

d) separating the first generation primer extension products from their respective templates to produce single-stranded molecules;

e) exposing said reaction mixture to conditions such that second generation primer extension products are generated by said first nested primers using first generation primer extension products as templates, wherein the second generation primer extension products contain at least a portion of the sequence of the nucleic acid sequence of the first generation

primer extension product and no more than an insufficient portion of the binding site for said first nested primers for producing said first generation primer extension products;

f) separating the second generation primer extension products from their template to produce single stranded molecules;

g) subjecting the reaction mixture of step (f) to reaction conditions such that next generation primer extension products are synthesized from another nested primer of said series of nested primers using second generation primer extension products as templates, and separating the thus produced next generation primer extension products from their templates to produce single-stranded molecules; and

h) repeating step (g) such that each repeat of step (g) comprises subjecting the reaction mixture to conditions such that next generation primer extension products are synthesized from a different nested primer of said series of nested primers using the next prior generation primer extension products as templates.

20. **(Previously Amended)** A process for amplifying a cDNA molecule comprising:

a) generating a cDNA molecule according to the process of claims 16;

b) combining the first and second strands in a reaction mixture with a series of nested primers, each nested primer containing a non-replicable element and/or a cleavable element, said series of nested primers comprising a plurality of primers

which are complementary to different portions of said strands and flank the sequence of interest but do not overlap with one another at the position of said non-replicable element or cleavable element;

c) subjecting said reaction mixture to conditions whereby each of said nested primers is capable of binding to its respective complementary site;

d) separating the first generation primer extension products from their respective templates to produce single-stranded molecules; and

e) repeating steps (c) and (d) whereby next generation primer extension products are synthesized from a different nested primer of said series of nested primers using the next prior generation primer extension products as templates.

21. **(Original)** The process according to any one of claims 16-20, wherein the non-replicable element is not located at the terminal residue of any of said primers.

22. **(Original)** The process according to any one of claims 16-20, wherein the cleavable element is not located at the terminal residue of any of said primers.

23. **(Previously Amended)** The process of anyone of claims 17 -20, wherein said primer of step (b) of the dependent claim contains a non-replicable element.

24. **(Previously Amended)** The process of any one of claims 17 -20, wherein said primer of step (b) of the dependent claim contains a cleavable element.

25. **(Original)** The process of claim 24 wherein the cleavable element is a ribonucleoside.

26. **(Original)** The process of claim 25 wherein said first generation primer extension product is cleaved by treating said product with ribonuclease.

27. **(Original)** The process according to any one of claims 16-20 wherein the non-replicable element is a derivative of a deoxyribonucleotide.

28. **(Original)** The process according to any one of claims 16-20 wherein the non- replicable element is a derivative of a ribonucleotide.

29. **(Original)** The process according to claim 28 wherein the non- replicable element is a residue of 1,3-propane diol.

30. **(Original)** The process according to claim 28 wherein the non- replicable element is a residue of 1,4-anhydro-2-deoxy-D- ribitol.